

ANNUAL SUMMARY OF THE SOUTHERN PINE BEETLE  
CONTROL PROJECT IN TEXAS - 1966

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INTRODUCTION

An historical record of observations and activities of the Southern Pine Beetle Control Project in Texas has been maintained in the form of annual summaries since 1958. This report supplements those prepared during the previous eight years of this current control project.

An epidemic of southern pine beetle ended in 1951 and was followed by six years of negligible beetle damage. Then in 1957 beetle-killed timber was observed at log decks from operations near Sour Lake in Hardin County. The beetle outbreak continued to grow in size and intensity each successive year until 1962 when 23,538,100 cubic feet of timber was killed over a 4,500,000 acre area. Timber losses declined in 1963 and 1964, reaching a low of 519,900 cubic feet in 1964. Volume of beetle-killed timber rose in 1965 to 1,191,600 cubic feet and increased again in 1966 to 1,543,700 cubic feet. An estimated 53 percent, or 818,170 cubic feet, of all beetle killed timber in 1966 was salvaged. A total of 48,391 acres of pine timber in many small spots has been killed by southern pine beetles since the control project began. An estimated total of 1,632 acres of pines were killed in 1966.

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The first southern pine beetle infestations in 1966 appeared in January; control began shortly thereafter. Nearly all phases of the epidemic and subsequent control project were more intense than in 1965. Landowners and the Texas Forest Service amassed the control force needed to curb all beetle activity in multiple-tree spots. Single-tree infestations were controlled from January through May. The most concerted effort to control the insects was obtained in 1966 due to improved preparation and cooperation by landowners in the project. The Texas Forest Pest Law was of value in removing the hazard of allowing many spots to remain uncontrolled; 71 spots were controlled under the provision of this law.

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Control expenditures for southern pine beetle suppression in 1966 totaled \$291,565.70. Expenditures of each private landowner are listed in the Appendix. Expenditures by the Federal Government including USFS are not included. Landowners who failed to request, or decided against, reimbursement did not make their monetary losses available for publication.

CHRONICLE OF 1966 EVENTS

January 6-21 - The first of three operations recorder surveys was completed by the Texas Forest Service to determine the distribution and degree of southern pine beetle infestations in southeast Texas (1). The number of active southern pine beetle infested trees per thousand acres (2.7) was greater than found in any January of the three previous years.

February 4 - The Sub-Committee on Field Control of the parent Texas Forest Pest Committee met for the first of ten conferences throughout 1966 to discuss forest pest problems and the latest Southern Pine Beetle Control Project developments.

February 14 - Detection flights by cooperators and the Texas Forest Service began over the 3,000,000 acre infestation area. Monthly flights were made in February and November whereas biweekly flights extended from March 14 through October 10.

March 30 - April 13 - A second operations recorder survey was conducted by the Texas Forest Service to evaluate southern pine beetle activity throughout southeast Texas (2). Active southern pine beetle infested trees per thousand acres dropped slightly from the January survey but remained higher than found in April 1965.

April 1 - Up-to-date ownership maps of southeast Texas were purchased by the Texas Forest Service from Tobin Map Company for use in the Southern Pine Beetle Control Project.

September 1 - Work was begun on construction of new maps for use by the Texas Forest Service and others involved in the Southern Pine Beetle Control Project. The U. S. Geological Survey base maps were up-dated using most recent ASCS aerial photography. Completed maps will show forested areas in green, without contour lines, and would be in quadrangles with a scale of 1 inch = 1 mile. Work was done by two draftsmen employed by the Texas Forest Service.

September 27 - October 26 - A third operations recorder survey was made by the Texas Forest Service to determine the degree and distribution of southern pine beetle activity in southeast Texas (3). Active southern pine beetle trees per thousand acres rose over the September 1965 figure (3.0 to 2.7). Climatic conditions remained favorable for increased beetle activity.

December 31 - All 1,925 southern pine beetle spots aerially detected were controlled by the end of the year. Control was in progress on the last spot found on the ground which developed from incorrectly pruning three miles of right-of-way. Over 350 trees were treated along this right-of-way with work completed on January 4, 1967.

DETECTION

Subsequent to aerial detection landowners kept informed of Southern pine beetle activity. Several landowners used ground crews, either walking or on horseback, to strip chronic beetle infested areas during the winter and early spring. Aerial observers flew in high-wing aircraft generally Cessna 172's at 1500 feet altitude and 100 miles per hour. Flight lines were spaced  $2\frac{1}{2}$  miles apart.

Sectors were flown by Texas Forest Service and forest industry personnel. Five sectors were covered by forest industry and four by the Texas Forest Service. Detection commenced with a flight in February, continued biweekly from March to October, and ended with a single flight in November. Single-tree spots were gridded from February through May but the practice was then discontinued as multiple-tree spots became so numerous that all control work was aimed at controlling these spots. As single infested trees were found by control crews, those were treated.

The infestation area (see Appendix) expanded on all sides in 1966 when compared to the 1965 area. New locations of beetle activity distant from previous infestation areas appeared below Dayton, southeast of Trinity, and south of Sam Rayburn reservoir.

Monthly totals of spots detected during 1966 are shown in Table I below. Although single tree spots were reported to landowners for a period of time only multiple-tree spots were kept on Texas Forest Service records. The number of spots reported for January came from a sample survey over 2,000,000 acres; complete aerial coverage of the area was not made until February. Southern pine beetles were found in 60 percent of all spots detected from scheduled flights during the year.

TABLE I

SPOTS DETECTED BY AERIAL OBSERVATION, 1966

Month	New Spots Detected
January	11 <u>1</u>
February	15
March	57
April	74
May	456
June	1220
July	734
August	422
September	151
October	22
November	10
December	0
TOTAL	3172 <u>2</u>

1 Spots detected during the January evaluation survey.

2 Southern pine beetles found in 1925 of the spots.

Spots detected by the Texas National Forests are not included in Table I although 127 spots contained southern pine beetles. Detection flights followed a biweekly pattern on the Sam Houston and Angelina National Forests. Single- and multiple-tree spots were both gridded.

#### CONTROL

Southern pine beetle control started early in 1966. Spots detected during the January survey contained a 250 tree infestation on Owens-Illinois which was controlled by February 2. The epidemic reached its zenith during the last week of June when landowners had 1,127 multiple-tree spots for which no control action had been reported. Control continued through December 31 at which time one spot was still being controlled. Southern pine beetle infested trees controlled during the year totalled 102,811 on 1,925 spots for an average of 53.4 trees per spot. This compares with 41.5 trees controlled per spot in 1965.

Control in high hazard Southern pine beetle areas such as Votaw, Strain Switch, and Roganville compared closely with the 1965 project. The overflow of beetle spots controlled in 1966 appeared mostly outside the 1965 epidemic boundary. Lands west of the Trinity River in Liberty and San Jacinto counties showed the greatest increase. Another notable extension was north of U. S. Highway 190 from Livingston to Jasper. The total area of infestation extended over a 4,000,000 acre portion of southeast Texas. The largest infestation was located in a very inaccessible section north of Strain Switch in Hardin County. Southern pine beetles killed 1,500 trees there before chemical control suppressed the rampage.

The Texas Forest Pest Control Act was used in 1966 for the second straight year to stop Southern pine beetle infestations which landowners failed to suppress. Control crews of the Texas Forest Service chemically treated 71 infestations upon which authorization for control was prescribed by the law. Landowners reimbursed the Texas Forest Service for control on another 154 beetle outbreaks. Spots controlled by the Texas Forest Service on landowners with less than 50 forested acres exempted the landowner from charges; 57 of these infestations were controlled. The grand total of spots controlled by the Texas Forest Service therefore totalled 282.

Chemical control as in past years remained two gallons of 11% gamma isomer BHC per fifty gallons of number 2 fuel oil.

#### Project Personnel

Personnel employed by private landowners and Texas Forest Service on the Southern pine beetle control project totalled 417; 105 more than employed in 1965. Crew size ranged from two to six people with the average about four men per crew. Injuries plagued persons employed in

the project and clearly shows the need for training and enforcement of proper safety practices with tools and chemicals. One fatality occurred along with eleven lost time accidents. More lost time accidents were probably sustained but not reported. Injury to the sawyer or other crewmen happened on eight out of the twelve accidents reported as the tree fell to the ground. Injuries from falling trees included the fatality, strained backs, a bruised arm, and a damaged eye. Lost time accidents not caused from dropping trees included a leg injury, a strained back, an eye injury and illness caused by excessive contact with BHC.

#### Volume of Timber Killed

Timber volume killed by the southern pine beetle jumped for the second straight year from 1,191,600 cubic feet in 1965 to 1,543,700 cubic feet in 1966. The amount of sawtimber killed rose approximately  $2\frac{1}{2}$  million board feet (6,256,000 bd. ft. from 3,797,000 bd. ft.) over the previous year, whereas pulpwood loss decreased slightly (6,930 cds. from 7,743 cds.). Total acreage in the spots of pine timber killed increased to 1,632. The cumulative total area of pine timber lost since 1958 is an estimated 48,391 acres.

The volume of timber salvaged amounted to 53% of that portion killed. Salvage removed 66% of all timber killed in 1965. The 1966 amounts utilized were 3,365 M bd. ft. of sawtimber and 3,480 cds. of pulpwood. Table II listed below shows timber volume killed each year from 1958 through 1966.

TABLE II

#### Timber Volume Killed

Year	Sawlogs (M bd. ft.)	Pulpwood (cds.)	Total (M cu. ft.)*
1958	500	0	83.5
1959	2,500	2,500	597.5
1960	8,000	8,000	1,912.0
1961	17,887	24,000	4,715.1
1962	93,043	111,110	23,538.1
1963	4,084	1,920	820.3
1964	2,501	1,420	519.9
1965	3,797	7,743	1,191.6
1966	6,256	6,930	1,543.7
GRAND TOTAL	138,568	163,623	34,921.7

\* Conversion factors: 167 cu. ft./ M bd. ft. and 72 cu. ft./ cd.

The volume loss information presented in Table II contains all known beetle depredations in southeast Texas. Private, company, state, and federal representatives were consulted to obtain the most exact loss figures.

SUMMARY

The Southern Pine Beetle Control Project began in January, 1966, reached a crest in late June and then declined through December 31 with one spot left to control. Single-tree infestations were controlled by some landowners from January through May. The Texas Forest Pest Law was enforced to lower the hazardous beetle population. Provisions of the law enabled the Texas Forest Service to suppress 71 infestations which landowners let run rampant. Texas Forest Service control crews also treated 211 beetle infestations on which landowners either reimbursed control costs or were exempt from charges. Landowners controlled the remaining 1,643 active infestations.

The most significant additions to the control project were the purchase of ownership maps by the Texas Forest Service from the Tobin Map Company and the initiation of a program to up-date USGS maps from recent aerial photographs. A draftsman was hired September 1, 1966, to start the program which hopefully can be completed by November, 1967.

Three southern pine beetle evaluation surveys were conducted by the Texas Forest Service during the year to determine beetle activity in southern Texas. The January and April survey results predicted the 1966 beetle population would be larger than experienced in 1965. The September survey predicted that beetle activity would be more intense in 1967 than in 1966 barring any unforeseen winter setback to the population. Control efforts must be continued in 1967 to prevent excessive timber losses by the Southern pine beetle.

Errata

The 1965 annual report should be corrected on page 5 under Table II to read 167 cu. ft./ M bd. ft.

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*DS*

LITERATURE CITED

1. Williamson, D. L. and M. M. Ollieu. 1966. Aerial Survey of Southern Pine Beetle Infestations in Southeast Texas. Unpublished January Report. Forest Pest Control Section, Texas Forest Service, Lufkin, Texas.
2. Williamson, D. L. and M. M. Ollieu. 1966. Aerial Survey of Southern Pine Beetle Infestations in Southeast Texas. Unpublished April Report. Forest Pest Control Section, Texas Forest Service, Lufkin, Texas.
3. Williamson, D. L. and M. M. Ollieu. 1966. Aerial Survey of Southern Pine Beetle Infestations in Southeast Texas. Unpublished November Report. Forest Pest Control Section, Texas Forest Service, Lufkin, Texas.

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APPENDIX

Statement of Southern Pine Beetle Control Expenditures for 1966

Map of Southern Pine Beetle Infestation Area - 1966



## SOUTHERN PINE BEETLE CONTROL EXPENDITURES

January 1, 1966 - December 31, 1966

## COOPERATOR

## EXPENDITURES REPORTED

Angelina Co. Lumber Co.	\$ 995.03
Baldwin & Baldwin	167.06
Dorf Bean, M. D.	136.76
W. M. Bond	41.20
Mrs. C. C. Brown	74.25
Charles T. Butler, Jr.	34.11
Gerald B. Carter	27.49
W. T. Carter & Bros.	19,825.34
L. Cartwright Production Co.	264.20
Champion Papers, Inc.	13,976.79
C. L. Cochran	90.13
Richard F. Coward	13.76
Jeremy S. Davis	441.15
Wirt Davis	2,590.32
H. E. Dishman	242.88
J. N. Farris Estate	80.00
Bernice Finger	69.74
W. C. Gilbert Estate	45.64
International Paper Co.	14,012.91
Jasper Investment Corp.	84.50
Edward S. Jett	54.91
Tom R. Jones	51.21
Kirby Lumber Corp.	36,747.12
George P. Kirkpatrick	60.20
W. W. Lester	194.80
Lutcher & Moore Lbr. Co.	5,288.00
Elsie Marshall	62.77
Moss American, Inc.	1,896.04
W. L. Neal	17.53
Newton Lumber Co.	36.01
Nona Mills Co.	361.15
Babette Moore Odom	226.51
Owens-Illinois Inc.	43,288.34
G. H. Parrish	78.40
Phoenix Development Co.	47.29
Bradford Pickett, et. al	152.11
Ben S. Pope	175.28
F. Starr Pope	151.92
T. W. Prescott	30.10
B. E. Quinn & Sons	786.68
P. A. Racki Lumber Co.	6,930.05
Wm. M. Rice University	330.40
Lester M. Ricks	127.31
William Seale Estate	17.33
H. B. Shepherd	479.50